

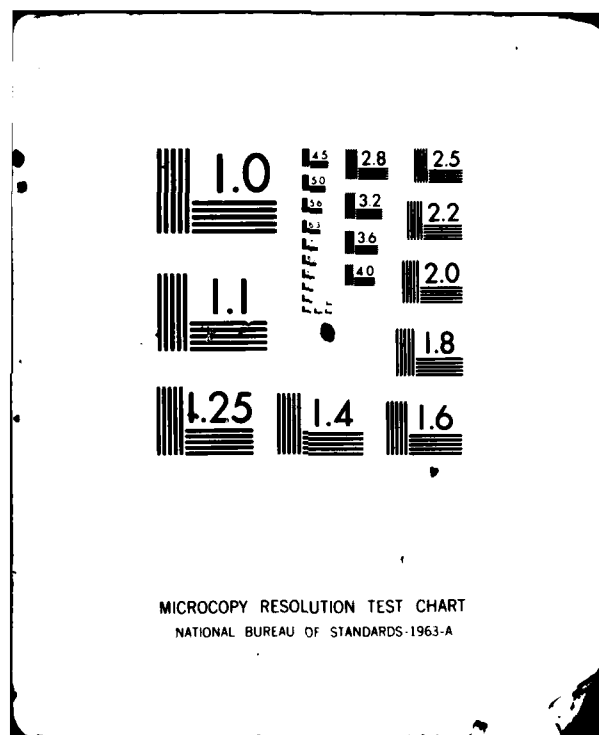
AD-A115 015 ARMY ELECTRONICS COMMAND WHITE SANDS MISSILE RANGE N--ETC F/O 4/2
193106 AND 193109A MLRS MISSILE NUMBERS BN-032, BN-022, BN-023, --ETC(U)

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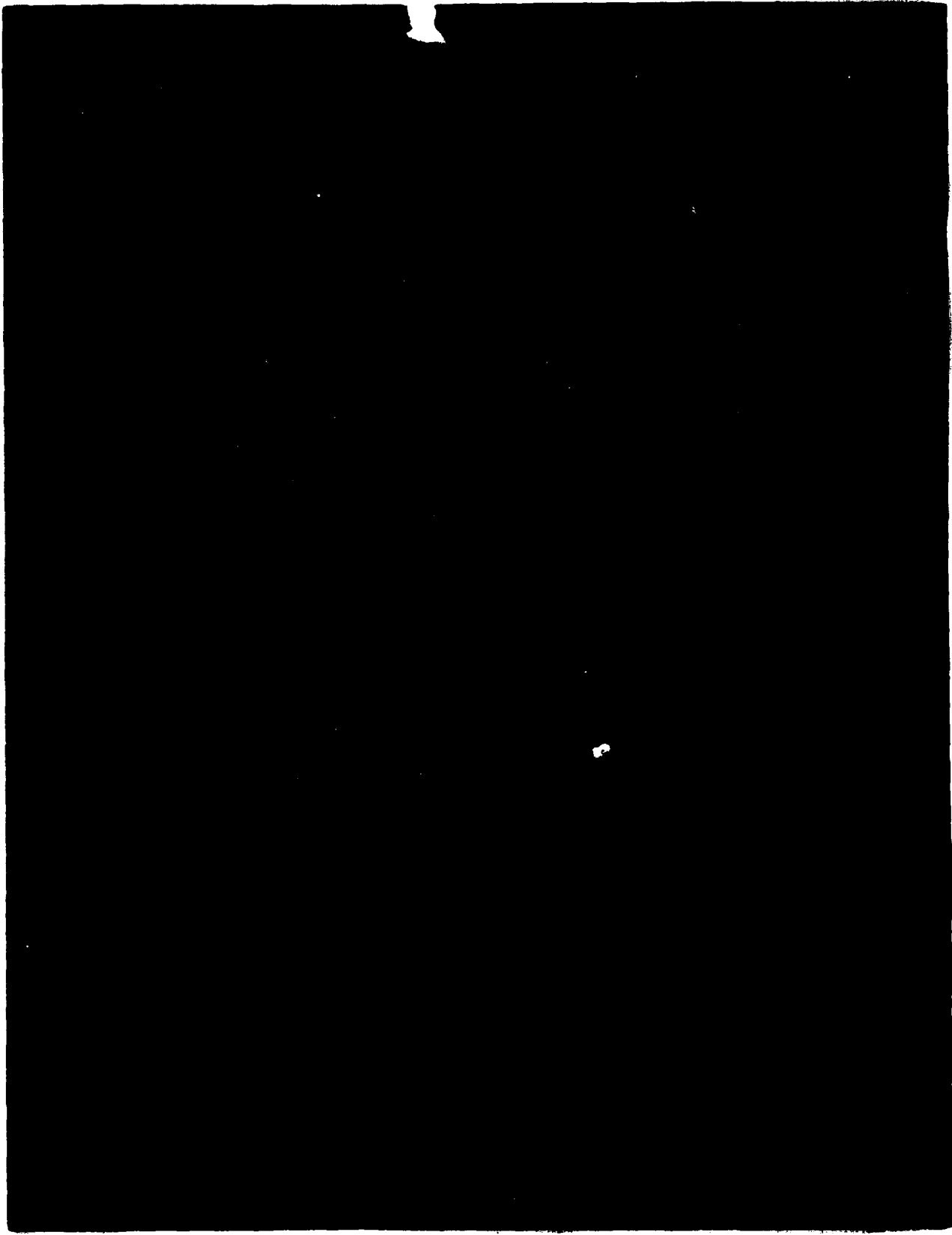
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of the 19318B and 19319A MLRS Missile Number BN-032, BN-023, BN-022, Bn-025, BN-026, BN-029, Round Number V-238/MD-90 thru V-243/MD-95 are presented in tabular form. ↑		

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INTRODUCTION

193188/19319A MLRS, Missile Numbers BN-032, BN-022, BN-023, BN-025, BN-026, and BN-029, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1020:05, 1020:09, 1020:14, 1028:29, 1028:34 and 1028:38 MST, 16 April 1982. The scheduled launch times were 1000, 1000:04.5, 1000:09, 1005, 1005:04.5 and 1005:09 MST.

DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

1. Observations

a. Surface

(1) Standard surface observations to include pressure, temperature ($^{\circ}\text{C}$), relative humidity, dew point ($^{\circ}\text{C}$), density (gm/m^3), wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

b. Upper Air

(1) Low level wind data were obtained from Pilot-Balloon observations at:

SITE AND ALTITUDE

WSD 2 Km
DON 2 Km

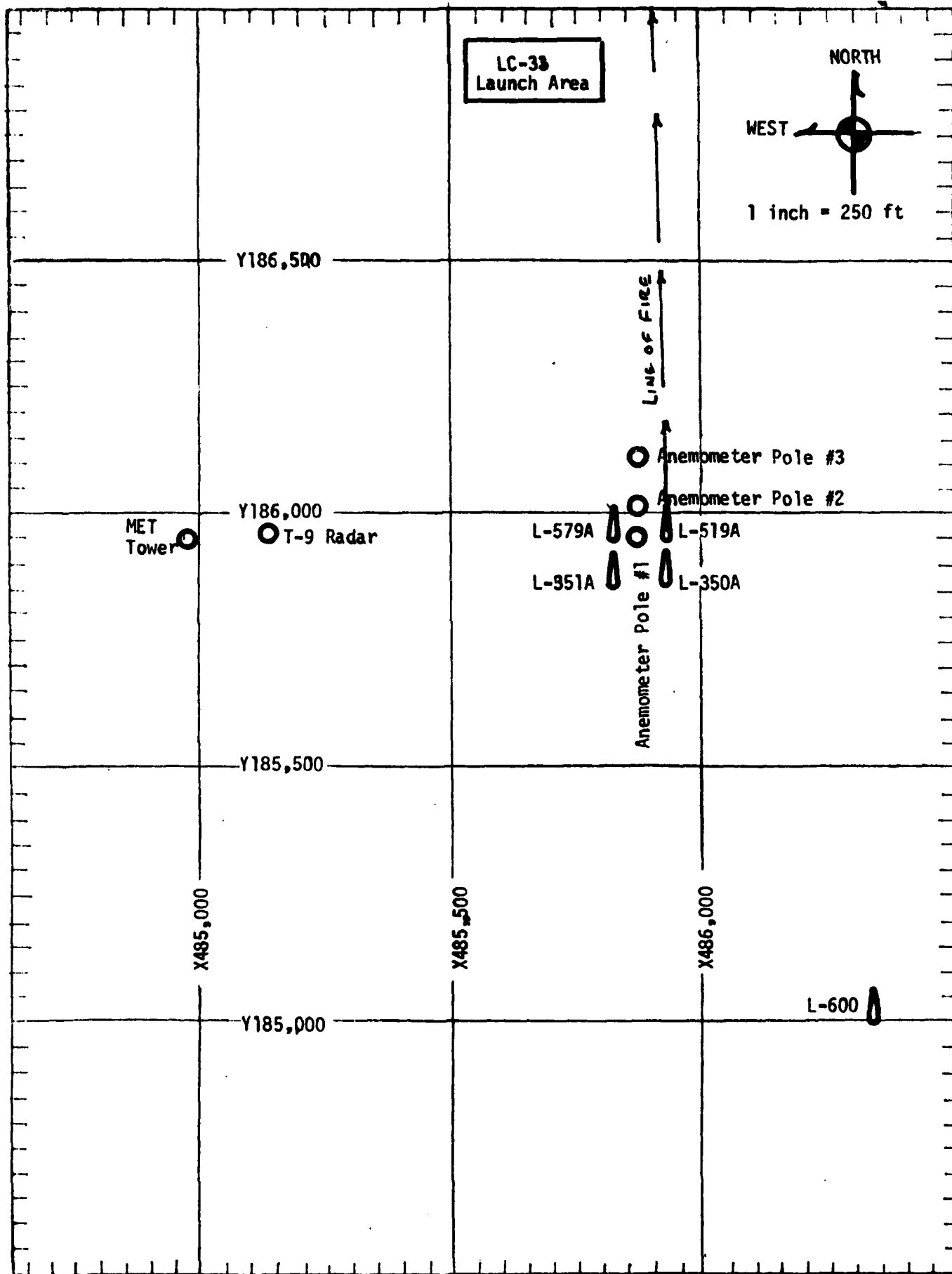
(2) Air structure data (rawinsonde) were collected at the following Met Sites.

SITE AND TIME

WSD 0700 MST
LC-37 0830 MST
WSD 0900 MST
LC-37 1020 MST



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Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution/	
Availability Codes	
Avail and/or	
Dist	Special
A	



PROJECT SURFACE OBSERVATION

TABLE 1									
STATION LC 33 E & A									
DATE 16 APR 82		PRESSURE mbs		TEMPERATURE OF		DEW POINT OF		RELATIVE HUMIDITY %	
TIME M S I		PRESSURE mbs		TEMPERATURE OF		DEW POINT OF		RELATIVE HUMIDITY %	
1020		876.6		21.5		-4.8		17	
1028		876.6		21.8		-5.0		16	

STATION LC 33 E & A									
X= 484,982.64 Y= 185,957.73 H= 3995.00									
DATE 16 APR 82		PRESSURE mbs		TEMPERATURE OF		DEW POINT OF		RELATIVE HUMIDITY %	
TIME M S I		PRESSURE mbs		TEMPERATURE OF		DEW POINT OF		RELATIVE HUMIDITY %	
1020		876.6		21.5		-4.8		17	
1028		876.6		21.8		-5.0		16	

PSYCHROMETRIC COMPUTATION

TIME:	1020	1028
DRY BULB TEMP.	21.5	21.8
WET BULB TEMP.	8.9	9.0
WET BULB DEPR.	12.6	12.8
DEW POINT	-4.8	-5.0
RELATIVE HUMID.	17	16

TABLE 2 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1 X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL			POLE #2 X485,874.93 Y186,012.00 H4033.57 53.0 ft. AGL			POLE #3 X485,877.29 Y186,116.06 H4063.92 83.6 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	249	10	T-30	287	07	T-30	283	12
T-20	265	11	T-20	275	08	T-20	275	11
T-10	258	11	T-10	272	09	T-10	279	12
T0.0	253	11	T0.0	271	09	T0.0	258	08
T+10	255	10	T+10	275	09	T+10	283	11

TABLE 3 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	293	08	T-30	273	11
T-20	277	08	T-20	285	10
T-10	305	07	T-10	290	09
T0.0	295	06	T0.0	275	07
T+10	248	06	T+10	253	12

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	266	10	T-30	266	11
T-20	270	09	T-20	256	16
T-10	255	10	T-10	252	16
T0.0	273	08	T0.0	246	12
T+10	242	12	T+10	232	12

TABLE 4 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1 X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL			POLE #2 X485,874.93 Y186,012.00 H4033.57 53.0 ft. AGL			POLE #3 X485,877.29 Y186,116.06 H4063.92 83.6 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	243	19	T-30	261	16	T-30	271	18
T-20	242	17	T-20	258	14	T-20	265	19
T-10	240	15	T-10	265	12	T-10	264	21
T0.0	243	16	T0.0	258	14	T0.0	269	18
T+10	242	16	T+10	257	15	T+10	279	20

TABLE 5 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	268	14	T-30	260	21
T-20	273	15	T-20	264	20
T-10	272	14	T-10	261	20
T0.0	255	14	T0.0	259	18
T+10	253	12	T+10	261	18

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T-30	255	19	T-30	255	18
T-20	256	19	T-20	246	19
T-10	250	20	T-10	254	17
T0.0	251	17	T0.0	251	17
T+10	248	17	T+10	255	17

TABLE 6

T-TIME PILOT-BALLOON OBSERVATION

DATE 16 April 1982

SITE: WSD

TIME: 1020 MST

WSTN COORDINATES:

X= 488,580.00

Y= 185,580.00

H= 3,989.00

SITE: DON

TIME: 1020 MST

WSTN COORDINATES:

X= 511,988.37

Y= 247,396.36

H= 3,996.83

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	300	06
150	280	14
210	272	15
270	284	19
330	276	21
390	270	19
500	278	18
650	277	18
800	286	18
950	290	20
1150	283	21
1350	272	20
1550	268	19
1750	264	17
2000	261	19

Data obtained from Nike-Herc Radar
Tracked pilot-balloon observation

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	260	10
150	252	11
210	250	11
270	257	11
330	264	10
390	270	10
500	281	11
650	291	10
800	280	11
950	276	11
1150	277	13
1350	277	16
1550	273	21
1750	263	24
2000	262	36

Data obtained from single Theodolite
Tracked pilot-balloon observation

TABLE 7

1-1111E PILOT-BALLOON OBSERVATION - 1111E 1111E

DATE 16 April 1982

SITE: WSD

TIME: 1028 MST

NOTE COORDINATES:

X= 488,580.00

Y= 185,045.00

H= 3,989.00

SITE: DON

TIME: 1028 MST

NOTE COORDINATES:

X= 511,988.37

Y= 247,396.36

H= 3,996.83

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	255	12
150	280	27
210	285	24
270	271	23
330	279	22
390	281	19
500	285	20
650	290	19
800	269	20
950	267	23
1150	271	24
1350	272	24
1550	274	26
1750	268	26
2000	255	31

Data obtained for Nike-Herc
Tracked pilot-balloon observation.

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	270	08
150	268	09
210	269	09
270	270	08
330	271	08
390	271	08
500	271	07
650	278	08
800	288	10
950	277	10
1150	266	11
1350	263	13
1550	266	17
1750	269	24
2000	MISG	

Data obtained from single Theodolite
Tracked pilot-balloon observation.

AIMING and T-TIME COMPUTER MET MESSAGES
16 APRIL 1982WSD 0700 MST
METCM1324064
161400122875

00480004	29060875
01505015	29070865
02498013	28980840
03505022	28600801
04501024	28130754
05486031	27690709
06471035	27270667
07459041	27070626
08474040	26970588
09470038	26720552
10467039	26350517
11459041	25940485
12465053	25410439

LC-37 0830 MST
METCM1324063
161550124875

00462008	29340875
01514015	29210865
02518016	28930840
03526009	28570801
04479019	28130754
05479026	27700710
06466041	27440667
07455041	27220627
08463034	26980589
09460033	26590552
10465037	26200518
11459039	25820485
12457052	25350439

WSD 0900 MST
METCM1324064
161600122876

00444013	29480876
01496016	29180865
02494021	28900840
03519021	28550801
04488024	28090755
05475027	27610710
06473031	27270667
07459041	27130626
08466032	27020588
09462030	26690552
10459038	26240518
11456040	25830485
12459048	25330439

LC-37 1020 MST
METCM1324063
161730124876

00480007	29500876
01475017	29260866
02472023	28940841
03477022	28590802
04473023	28150755
05467027	27720710
06457041	27420668
07469039	27170627
08462037	26880589
09459038	26540553
10454038	26220518
11454045	25900485
12455046	25380439

GEOGRAPHIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

SIGNIFICANT LEVEL DATA
 1060020155
 WHITE SANDS

TABLE 9

STATION ALTITUDE 3989.00 FEET MSL
 16 APR. 82 0700 HRS MST
 ASCENSION NO. 155

PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE		REL. HUM. PERCENT
	AIR DEGREES	DEWPOINT CENTIGRADE	
874.8	16.6	-6	31.0
850.0	16.5	4.5	45.0
738.8	6.0	-4.7	46.0
700.0	2.4	-6.9	50.0
675.6	-3	-6.7	53.0
658.0	-1.8	-11.3	48.0
649.2	-1.7	-12.3	44.0
617.4	-3.7	-14.7	42.0
611.4	-2.5	-13.9	41.0
564.4	-5.2	-16.4	41.0
548.2	-6.4	-17.4	41.0
500.0	-11.9	-22.7	40.0
477.2	-15.1	-25.6	40.0
462.0	-15.9	-26.3	40.0
400.0	-24.7	-34.3	40.0
355.6	-31.0	-39.9	41.0
336.2	-34.3	-42.9	41.0
300.0	-40.5		
250.0	-49.6		

UPPER AIR DATA
1060020155
WHITE SANDS
TABLE 10

STATION ALTITUDE 3989.00 FEET MSL
16 APR. 62 0700 HRS MST
ASCENSION NO. 155

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LONG DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INJEX OF REFRACTION
3989.0	874.8	16.6	31.0	1049.1	664.0	270.0	4.1	1.000260
4000.0	874.5	16.6	31.2	1048.7	664.0	270.3	4.2	1.000260
4500.0	859.0	16.5	39.9	1029.5	664.2	278.3	7.6	1.000263
5000.0	843.6	15.9	45.1	1012.9	663.5	281.4	11.1	1.000263
5500.0	828.4	14.6	45.2	999.5	661.9	282.9	14.6	1.000257
6000.0	813.4	13.2	45.3	986.4	660.3	283.9	18.1	1.000252
6500.0	798.7	11.8	45.4	973.4	658.7	284.1	20.7	1.000246
7000.0	784.3	10.5	45.6	960.7	657.0	283.9	22.5	1.000241
7500.0	770.2	9.1	45.7	948.1	655.4	283.1	24.0	1.000236
8000.0	756.3	7.7	45.8	935.6	653.7	281.4	25.0	1.000232
8500.0	742.6	6.4	46.0	923.4	652.1	279.9	26.0	1.000227
9000.0	728.9	5.1	47.0	910.7	650.5	277.1	27.0	1.000223
9500.0	715.4	3.9	48.4	897.9	649.1	274.5	28.0	1.000219
10000.0	702.2	2.6	49.8	885.3	647.6	271.9	29.6	1.000216
10500.0	689.1	1.2	51.3	873.3	645.9	269.4	31.4	1.000212
11000.0	676.2	-0.2	52.9	861.6	644.2	267.0	33.3	1.000208
11500.0	663.4	-1.3	49.5	848.9	642.8	264.3	35.2	1.000203
12000.0	650.8	-1.7	44.8	834.2	642.3	261.9	37.0	1.000198
12500.0	638.5	-2.4	43.3	820.3	641.5	259.5	38.5	1.000194
13000.0	626.4	-3.1	42.6	807.1	640.6	258.5	40.8	1.000191
13500.0	614.5	-3.1	41.5	791.7	640.6	259.4	44.1	1.000187
14000.0	602.7	-3.0	41.0	776.2	640.7	262.7	43.9	1.000183
14500.0	591.2	-3.6	41.0	763.3	640.0	266.0	42.0	1.000180
15000.0	580.0	-4.3	41.0	750.6	639.2	268.7	38.7	1.000177
15500.0	568.9	-4.9	41.0	738.0	638.4	266.9	38.3	1.000174
16000.0	556.0	-5.7	41.0	725.9	637.5	265.2	38.0	1.000170
16500.0	547.3	-6.5	41.0	714.2	636.5	264.0	37.8	1.000167
17000.0	536.6	-7.7	40.8	703.5	635.1	264.1	37.6	1.000164
17500.0	526.2	-8.8	40.6	692.9	633.6	264.1	37.6	1.000161
18000.0	515.9	-10.0	40.3	682.5	632.2	262.6	38.2	1.000158
18500.0	505.9	-11.2	40.1	672.3	630.8	261.2	38.9	1.000156
19000.0	496.0	-12.5	40.0	662.3	629.2	259.7	39.8	1.000153
19500.0	486.2	-13.8	40.0	652.7	627.6	258.3	40.8	1.000150
20000.0	476.6	-15.1	40.0	643.1	626.0	258.2	43.4	1.000148
20500.0	467.1	-15.6	40.0	631.5	625.4	259.2	47.4	1.000145
21000.0	457.7	-16.5	40.0	620.8	624.3	260.6	50.7	1.000142
21500.0	448.4	-17.7	40.0	611.2	623.8	262.0	52.8	1.000140
22000.0	439.3	-19.0	40.0	601.8	621.2	263.9	54.1	1.000137
22500.0	430.4	-20.2	40.0	592.5	619.7	263.3	53.2	1.000135
23000.0	421.6	-21.5	40.0	583.4	618.1	261.8	53.1	1.000133

UPPER AIR DATA
1060020155
WHITE SANDS

STATION ALTITUDE 3989.00 FEET MSL
16 APR. 82
ASCENSION NO. 155

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 10 CONT'D

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE				DIRECTION DEGREES (TN)	SPEED KNOTS	
23500.0	413.1	-22.7	-32.6	40.0	574.4	616.6	259.7	53.6	1.000130
24000.0	404.7	-24.0	-33.7	40.0	565.6	615.0	258.7	52.9	1.000128
24500.0	396.4	-25.2	-34.8	40.1	556.7	613.5	257.9	52.0	1.000126
25000.0	388.1	-26.3	-35.8	40.3	547.5	612.1	257.5	51.8	1.000124
25500.0	379.9	-27.5	-36.8	40.4	538.6	610.7	257.1	51.8	1.000122
26000.0	372.0	-28.6	-37.7	40.6	529.8	609.3	257.2	52.9	1.000119
26500.0	364.2	-29.7	-38.7	40.8	521.1	607.9	257.4	53.7	1.000117
27000.0	356.6	-30.9	-39.7	41.0	512.6	606.5	257.6	53.1	1.000115
27500.0	349.0	-32.1	-40.9	41.0	504.3	604.9	257.7	52.6	1.000113
28000.0	341.6	-33.4	-42.0	41.0	496.2	603.3	257.7	50.6	1.000111
28500.0	334.2	-34.6	-43.7	38.9**	488.1	601.7	257.7	48.7	1.000110
29000.0	327.0	-35.8	-46.8	31.0**	479.9	600.2	257.9	48.7	1.000107
29500.0	319.9	-37.0	-50.4	23.1**	471.8	598.7	258.1	49.3	1.000105
30000.0	312.9	-38.2	-54.9	15.1**	463.9	597.1	258.5	50.9	1.000104
30500.0	306.1	-39.4	-61.7	7.2**	456.2	595.6	259.1	53.3	1.000102
31000.0	299.4	-40.6			448.5	594.1	259.7	55.7	1.000100
31500.0	292.7	-41.7			440.6	592.6	260.2	58.2	1.000098
32000.0	286.1	-42.9			432.8	591.2	260.6	59.7	1.000096
32500.0	279.7	-44.0			425.2	589.7	260.8	59.3	1.000095
33000.0	273.4	-45.1			417.7	588.3	261.0	58.3	1.000093
33500.0	267.2	-46.3			410.3	586.8	261.3	56.1	1.000091
34000.0	261.2	-47.4			403.1	585.3			1.000090
34500.0	255.4	-48.5			396.1	583.9			1.000088

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.00 FEET MSL
16 APR. 82 0700 HRS MST
ASCENSION NO. 155

MANDATORY LEVELS
1060020155
WHITE SANUS
TABLE 11

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4789.	16.5	4.5	45.	280.4	9.6
800.0	6469.	12.0	.5	45.	284.1	20.6
750.0	8228.	7.1	-3.7	46.	280.7	25.4
700.0	10074.	2.4	-6.9	50.	271.5	29.8
650.0	12021.	-1.7	-12.2	44.	261.8	37.1
600.0	14104.	-3.1	-14.5	41.	263.5	43.9
550.0	16352.	-6.3	-17.3	41.	264.1	37.8
500.0	18773.	-11.9	-22.7	40.	260.3	39.4
450.0	21389.	-17.5	-27.8	40.	262.3	52.4
400.0	24243.	-24.7	-34.3	40.	258.3	52.4
350.0	27386.	-31.9	-40.7	41.	257.7	52.7
300.0	30895.	-40.5			259.6	55.5
250.0	34892.	-49.6				

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4051.37 FEET MSL
 16 APR. 82 0830 HRS MST
 ASCENSION NO. 29

SIGNIFICANT LEVEL DATA
 1060180029
 LC-37

TABLE 12

PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE		REL. HUM. PERCENT
	AIR DEGREES	DEWPOINT CENTIGRADE	
875.2 4051.4	19.8	-9.4	13.0
850.0 4871.1	16.5	-8.6	17.0
700.0 10156.8	2.4	-15.1	26.0
678.2 10995.2	1.6	-22.2	15.0
622.6 13245.9	-1.5	-25.5	14.0
605.6 13969.7	-1.9	-25.8	14.0
500.0 18871.2	-13.3	-35.0	14.0
465.2 20662.8	-17.5	-37.8	15.0
441.8 21929.9	-19.2	-39.2	15.0
400.0 24334.7	-25.0	-41.3	20.0

STATION ALTITUDE 4051.37 FEET MSL
 16 APR. 82 0830 HRS MST
 ASCENSION NO. 29

UPPER AIR DATA
 1060180029
 LC-37

GEODETIC COORDINATES
 32.40175 LAT DEG
 106.31232 LON DEG

TABLE 13

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INJEX OF REFRACTION
							DIRECTION DEGREES (TN)	SPEED KNOTS	
4051.4	875.2	19.8	-9.4	13.0	1039.4	667.2	260.0	8.0	1.000245
4500.0	861.3	18.0	-8.8	15.2	1029.2	665.2	268.6	8.0	1.000243
5000.0	846.0	16.2	-8.7	17.2	1017.2	663.1	277.9	8.2	1.000241
5500.0	830.6	14.8	-9.2	18.1	1003.4	661.6	286.6	8.5	1.000237
6000.0	815.5	13.5	-9.7	18.9	989.7	660.0	294.4	9.1	1.000234
6500.0	800.6	12.2	-10.2	19.8	976.3	658.5	291.4	10.1	1.000231
7000.0	786.1	10.8	-10.8	20.6	963.1	656.9	283.6	11.4	1.000227
7500.0	771.8	9.5	-11.4	21.5	950.0	655.4	277.5	15.9	1.000224
8000.0	757.7	8.2	-12.1	22.3	937.2	653.8	274.4	21.8	1.000220
8500.0	743.9	6.8	-12.7	23.2	924.6	652.2	272.4	24.6	1.000217
9000.0	730.4	5.5	-13.4	24.0	912.1	650.7	270.6	26.6	1.000214
9500.0	717.1	4.2	-14.1	24.9	899.9	649.1	269.2	27.2	1.000211
10000.0	704.0	2.8	-14.9	25.7	887.8	647.5	267.9	26.5	1.000207
10500.0	691.0	2.1	-17.7	21.5	873.9	646.6	265.5	28.5	1.000202
11000.0	678.1	1.6	-22.2	15.0	859.3	645.9	262.6	33.1	1.000197
11500.0	665.3	.9	-22.9	14.8	845.3	645.1	259.3	37.7	1.000193
12000.0	652.8	.2	-23.6	14.6	831.5	644.3	256.7	41.5	1.000190
12500.0	640.5	-.5	-24.4	14.3	817.9	643.5	256.5	41.8	1.000186
13000.0	628.4	-1.2	-25.1	14.1	804.5	642.6	257.0	41.2	1.000183
13500.0	616.6	-1.6	-25.6	14.0	790.7	642.1	258.8	39.3	1.000180
14000.0	604.9	-2.0	-25.8	14.0	776.7	641.7	260.1	37.6	1.000177
14500.0	593.2	-3.1	-26.8	14.0	765.0	640.3	260.1	36.5	1.000174
15000.0	581.7	-4.3	-27.7	14.0	753.4	638.9	260.1	35.4	1.000171
15500.0	570.4	-5.5	-28.7	14.0	742.1	637.5	259.6	34.8	1.000168
16000.0	559.4	-6.6	-29.6	14.0	730.9	636.1	259.2	34.7	1.000166
16500.0	548.6	-7.8	-30.6	14.0	719.9	634.7	258.7	34.5	1.000163
17000.0	537.9	-8.9	-31.5	14.0	709.1	633.3	258.9	34.7	1.000160
17500.0	527.5	-10.1	-32.4	14.0	698.5	631.9	259.4	34.9	1.000158
18000.0	517.3	-11.3	-33.4	14.0	688.0	630.5	259.6	35.2	1.000155
18500.0	507.3	-12.4	-34.3	14.0	677.7	629.1	259.0	35.8	1.000153
19000.0	497.4	-13.6	-35.2	14.1	667.5	627.7	258.5	36.5	1.000150
19500.0	487.5	-14.8	-36.0	14.4	657.1	626.3	257.8	38.2	1.000148
20000.0	477.8	-15.9	-36.8	14.6	647.0	624.9	257.2	40.3	1.000146
20500.0	468.3	-17.1	-37.5	14.9	637.0	623.4	256.9	45.2	1.000143
21000.0	458.9	-18.0	-38.2	15.0	626.3	622.4	256.9	49.6	1.000141
21500.0	449.6	-18.6	-38.7	15.0	615.3	621.6	257.0	53.5	1.000138
22000.0	440.5	-19.4	-39.2	15.1	604.6	620.7	257.3	53.8	1.000136
22500.0	431.5	-20.6	-39.6	16.2	595.1	619.2	257.1	51.8	1.000134
23000.0	422.7	-21.8	-40.0	17.2	585.7	617.7	255.9	46.8	1.000132
23500.0	414.0	-23.0	-40.5	18.3	576.5	616.2			1.000129

STATION ALTITUDE 4051.37 FEET MSL	UPPER AIR DATA	GEODETIC COORDINATES
16 APR. 82	1060180029	32.40175 LAT DEG
ASCENSION NO. 29	LC-37	106.31232 LON DEG

TABLE 13 CONT'D

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	INDEX OF REFRACTION
24000.0	405.6	-24.2	-41.0	19.3	567.4	614.7	1.000127

STATION ALTITUDE 4051.37 FEET MSL
16 APR. 82 0830 HRS MST
ASCENSION NO. 29

MANDATORY LEVELS
1060180029
LC-37
TABLE 14

GEODETTIC COORDINATES
32.40175 LAT DEG
106.31232 LON DEG

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4868.	16.5	-8.6	17.	275.5	8.1
800.0	6545.	12.1	-10.3	20.	290.6	10.2
750.0	8301.	7.4	-12.4	23.	273.1	23.8
700.0	10147.	2.4	-15.1	26.	267.5	26.3
650.0	12103.	.1	-23.8	15.	256.6	41.6
600.0	14195.	-2.5	-26.2	14.	260.1	37.1
550.0	16438.	-7.6	-30.4	14.	258.8	34.5
500.0	18845.	-13.3	-35.0	14.	258.7	36.3
450.0	21447.	-18.6	-38.7	15.	257.0	53.2
400.0	24294.	-25.0	-41.3	20.		

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

SIGNIFICANT LEVEL DATA

1060020156
WHITE SANDS

TABLE 15

STATION ALTITUDE 3989.00 FEET MSL
16 APR. 82 0900 HRS MST
ASCENSION NO. 156

PRESSURE	GEOMETRIC ALTITUDE	TEMPERATURE AIR	DEWPOINT DEGREES	REL. HUM. PERCENT
MILLIBARS	MSL FEET	DEGREES	CENTIGRADE	
875.6	3989.0	21.0	-0.9	23.0
867.0	4267.3	17.5	-1.7	27.0
850.0	4820.8	16.1	-2.9	27.0
778.6	7240.1	9.7	-6.6	31.0
700.0	10099.2	1.5	-10.9	39.0
676.0	11018.8	-0.8	-12.7	40.0
659.5	11667.7	-0.4	-19.0	23.0
650.3	12035.8	-1.9	-20.2	23.0
626.8	12997.3	-2.0	-20.3	23.0
600.4	14121.0	-2.2	-21.5	21.0
565.6	15672.2	-4.8	-23.7	21.0
500.0	18809.8	-13.2	-30.8	21.0
458.4	20964.7	-18.2	-34.6	22.0
435.2	22236.3	-20.0	-35.7	23.0
400.0	24274.3	-24.9	-37.1	31.0
327.4	28955.7	-36.5	-46.6	34.0
307.6	30370.3	-39.5	-50.1	31.0
300.0	30932.1	-41.0		

UPPER AIR DATA
1060020156
WHITE SANDS
TABLE 16

STATION ALTITUDE 3989.00 FEET MSL
16 APR. 82
ASCENSION NO. 156

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LONG DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
3989.0	875.6	21.0	23.0	1034.4	669.0	250.0	13.0	1.000256
4000.0	875.3	20.9	23.2	1034.5	668.8	250.4	13.0	1.000256
4500.0	859.8	16.9	27.0	1030.3	664.3	266.4	14.9	1.000253
5000.0	844.5	15.6	27.3	1016.5	662.7	278.2	17.7	1.000249
5500.0	829.3	14.3	28.1	1003.0	661.2	285.7	20.1	1.000244
6000.0	814.4	13.0	28.9	989.6	659.6	290.7	20.8	1.000241
6500.0	799.8	11.7	29.8	976.4	658.1	289.2	21.0	1.000237
7000.0	785.4	10.3	30.6	963.4	656.5	286.0	21.5	1.000233
7500.0	771.1	9.0	31.7	950.5	654.9	279.6	23.4	1.000229
8000.0	756.9	7.5	33.1	937.8	653.2	275.3	25.1	1.000225
8500.0	742.9	6.1	34.5	925.3	651.5	272.7	26.5	1.000222
9000.0	729.2	4.7	35.9	913.0	649.8	270.3	27.3	1.000218
9500.0	715.8	3.2	37.3	900.9	648.1	267.9	26.5	1.000215
10000.0	702.6	1.8	38.7	889.0	646.4	266.4	26.7	1.000212
10500.0	689.4	.5	39.4	876.5	644.9	266.2	28.1	1.000208
11000.0	676.5	-.8	40.0	864.0	643.4	264.0	28.4	1.000204
11500.0	663.7	-.5	27.4	847.3	643.6	261.9	30.3	1.000197
12000.0	651.2	-1.8	23.0	835.3	642.0	260.9	35.8	1.000192
12500.0	638.8	-1.9	23.0	820.0	641.8	261.1	46.0	1.000189
13000.0	626.7	-2.0	23.0	804.6	641.7	260.2	47.8	1.000185
13500.0	614.8	-2.1	22.1	789.6	641.6	260.2	42.4	1.000182
14000.0	603.2	-2.2	21.2	774.9	641.5	260.8	34.0	1.000178
14500.0	591.7	-2.8	21.0	762.0	640.7	261.4	27.3	1.000175
15000.0	580.4	-3.7	21.0	749.9	639.7	260.2	28.2	1.000172
15500.0	569.4	-4.5	21.0	737.9	638.7	259.4	30.2	1.000169
16000.0	558.4	-5.7	21.0	726.8	637.3	258.8	32.7	1.000166
16500.0	547.5	-7.0	21.0	716.3	635.7	258.3	34.5	1.000164
17000.0	536.8	-8.4	21.0	705.9	634.1	257.6	34.3	1.000161
17500.0	526.4	-9.7	21.0	695.8	632.5	257.3	34.1	1.000158
18000.0	515.2	-11.0	21.0	685.7	630.9	257.0	34.6	1.000156
18500.0	506.1	-12.4	21.0	675.9	629.2	256.7	35.2	1.000153
19000.0	496.2	-13.6	21.1	665.8	627.7	256.7	36.5	1.000151
19500.0	486.5	-14.8	21.3	655.5	626.3	257.4	39.6	1.000148
20000.0	476.6	-16.0	21.6	645.3	624.9	257.8	43.0	1.000146
20500.0	467.1	-17.1	21.8	635.3	623.4	258.0	46.9	1.000144
21000.0	457.7	-18.2	22.0	625.4	622.1	258.1	49.5	1.000141
21500.0	448.5	-19.0	22.4	614.5	621.2	258.2	50.1	1.000139
22000.0	439.4	-19.7	22.8	603.7	620.3	258.5	47.0	1.000136
22500.0	430.5	-20.6	24.0	593.7	619.1	257.9	45.0	1.000134
23000.0	421.7	-21.8	26.0	584.4	617.7	257.8	47.5	1.000132

STATION ALTITUDE 3989.00 FEET MSL
16 APR. 82 0900 HRS MST
ASCENSION NO. 156

UPPER AIR DATA
1060020156
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 16 CONT'D

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	FEET			
23500.0	413.0	-23.0	-36.4	28.0	575.1	616.2	257.6	257.6	50.5	1.000130
24000.0	404.6	-24.2	-36.8	29.9	566.1	614.7	257.8	257.8	51.5	1.000128
24500.0	396.2	-25.5	-37.5	31.1	557.0	613.2	257.7	257.7	51.7	1.000126
25000.0	387.8	-26.7	-38.5	31.5	548.0	611.7	257.3	257.3	50.6	1.000123
25500.0	379.6	-27.9	-39.5	31.8	539.1	610.1	257.1	257.1	50.3	1.000121
26000.0	371.5	-29.2	-40.5	32.1	530.4	608.6	257.1	257.1	51.0	1.000119
26500.0	363.7	-30.4	-41.5	32.4	521.8	607.0	257.0	257.0	51.6	1.000117
27000.0	356.0	-31.7	-42.6	32.7	513.4	605.5	256.9	256.9	52.0	1.000115
27500.0	348.4	-32.9	-43.6	33.1	505.2	603.9	256.7	256.7	52.5	1.000113
28000.0	341.1	-34.1	-44.6	33.4	497.0	602.3	256.6	256.6	54.2	1.000111
28500.0	333.8	-35.4	-45.6	33.7	489.1	600.8	256.6	256.6	55.5	1.000110
29000.0	326.8	-36.6	-46.7	33.9	481.2	599.2	256.9	256.9	53.7	1.000108
29500.0	319.6	-37.7	-47.9	32.8	472.8	597.9	257.3	257.3	50.9	1.000106
30000.0	312.7	-38.7	-49.2	31.8	464.6	596.5	257.7	257.7	46.8	1.000104
30500.0	305.8	-39.8	-52.6	23.8**	456.6	595.1				1.000102

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.00 FEET MSL
16 APR. 82 0900 HRS MST
ASCENSION NO. 156

MANDATORY LEVELS
1060020150
WHITE SANDS

GEODEIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 17

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE	PERCENT		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4817.	16.1	-2.9	27.		274.4	16.6
800.0	6493.	11.7	-5.4	30.		289.2	21.0
750.0	8248.	6.8	-8.0	34.		273.9	25.8
700.0	10089.	1.5	-10.9	39.		266.3	27.0
650.0	12035.	-1.9	-20.2	23.		260.9	36.7
600.0	14122.	-2.2	-21.5	21.		261.0	31.7
550.0	16372.	-6.7	-25.3	21.		258.4	34.5
500.0	18784.	-13.2	-30.8	21.		256.5	35.5
450.0	21386.	-18.8	-35.0	22.		258.1	50.4
400.0	24234.	-24.9	-37.1	31.		257.8	52.0
350.0	27371.	-32.6	-43.4	33.		256.7	52.4
300.0	30871.	-41.0					

** A) LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LON DEG

SIGNIFICANT LEVEL DATA
1060180030
LC-37
TABLE 18

STATION ALTITUDE 4051.37 FEET MSL
16 APR. 82 1020 HRS MST
ASCENSION NO. 30

PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE		REL. HUM. PERCENT
	AIR DEGREES	DEWPOINT CENTIGRADE	
876.0 4051.4	21.3	-8.2	13.0
862.4 4492.8	18.2	-8.0	16.0
850.0 4898.1	16.5	-8.6	17.0
751.6 8279.8	7.9	-14.3	19.0
700.0 10187.2	2.7	-19.2	18.0
604.0 14065.0	-3.1	-26.0	15.0
552.6 16357.6	-8.0	-30.7	14.0
500.0 18890.0	-12.7	-33.9	15.0
441.4 21981.1	-18.9	-39.0	15.0
400.0 24364.0	-25.3	-40.7	22.0

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TABLE 19

GEODETIC COORDINATES
 32.40175 LAT DEG
 106.31232 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
4051.4	876.0	21.3	-8.2	13.0	1034.9	669.0	270.0	7.0	1.000245
4500.0	862.2	18.2	-8.0	16.0	1029.5	665.4	267.6	10.4	1.000244
5000.0	846.9	16.2	-8.8	17.1	1018.0	663.2	266.3	14.3	1.000241
5500.0	831.6	15.0	-9.6	17.4	1004.1	661.7	265.5	18.2	1.000237
6000.0	816.6	13.7	-10.4	17.7	990.5	660.2	267.0	19.1	1.000233
6500.0	801.9	12.4	-11.2	17.9	977.0	658.7	268.9	19.9	1.000230
7000.0	787.4	11.2	-12.1	18.2	963.7	657.3	270.2	22.0	1.000226
7500.0	773.2	9.9	-12.9	18.5	950.7	655.8	269.0	23.2	1.000222
8000.0	759.3	8.6	-13.8	18.8	937.8	654.3	266.6	23.9	1.000219
8500.0	745.5	7.3	-14.8	18.9	925.1	652.7	262.0	24.3	1.000215
9000.0	731.7	5.9	-16.1	18.6	912.5	651.1	259.5	25.6	1.000212
9500.0	718.2	4.6	-17.4	18.4	900.1	649.5	259.4	27.7	1.000208
10000.0	704.9	3.2	-18.7	18.1	887.9	647.9	260.0	30.0	1.000205
10500.0	691.7	2.2	-19.7	17.8	874.4	646.7	260.7	32.4	1.000201
11000.0	678.7	1.5	-20.6	17.4	860.3	645.8	261.3	33.9	1.000198
11500.0	665.9	.7	-21.5	17.0	846.5	644.9	261.5	32.6	1.000194
12000.0	653.4	-.0	-22.4	16.6	832.8	644.0	261.7	31.4	1.000191
12500.0	641.0	-.8	-23.2	16.2	819.4	643.1	261.8	30.9	1.000187
13000.0	629.0	-1.5	-24.1	15.8	806.2	642.3	261.8	31.0	1.000184
13500.0	617.1	-2.3	-25.0	15.4	793.2	641.4	261.7	31.1	1.000181
14000.0	605.5	-3.0	-25.9	15.1	780.5	640.5	261.3	33.4	1.000178
14500.0	593.9	-4.0	-26.9	14.8	768.4	639.2	260.6	37.9	1.000175
15000.0	582.5	-5.1	-27.9	14.6	756.7	638.0	260.1	42.4	1.000172
15500.0	571.3	-6.2	-29.0	14.4	745.2	636.7	259.7	44.6	1.000169
16000.0	560.3	-7.2	-30.0	14.2	733.8	635.4	259.4	45.3	1.000166
16500.0	549.5	-8.3	-30.9	14.1	722.5	634.1	258.9	44.3	1.000163
17000.0	538.8	-9.2	-31.5	14.3	710.8	633.0	257.9	40.8	1.000161
17500.0	528.2	-10.1	-32.1	14.5	699.4	631.9	256.6	38.1	1.000158
18000.0	517.9	-11.0	-32.7	14.6	688.1	630.8	255.7	36.7	1.000155
18500.0	507.8	-12.0	-33.4	14.8	677.1	629.7	255.1	37.7	1.000153
19000.0	497.8	-12.9	-34.0	15.0	666.2	628.5	254.7	39.9	1.000150
19500.0	487.8	-13.9	-34.9	15.0	655.4	627.3	254.5	44.4	1.000148
20000.0	478.1	-14.9	-35.7	15.0	644.9	626.1	254.3	46.7	1.000145
20500.0	468.6	-15.9	-36.5	15.0	634.5	624.9	254.3	46.7	1.000143
21000.0	459.2	-16.9	-37.3	15.0	624.2	623.7	254.8	45.7	1.000140
21500.0	450.0	-17.9	-38.2	15.0	614.2	622.4	255.7	44.2	1.000138
22000.0	441.1	-19.0	-39.0	15.1	604.3	621.2	256.5	44.7	1.000136
22500.0	433.0	-20.3	-39.2	16.5	595.1	619.5	257.0	46.9	1.000134
23000.0	425.2	-21.6	-39.5	18.0	586.1	617.9			1.000132
23500.0	414.5	-23.0	-39.9	19.5	577.2	616.2			1.000130

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 TABLE 19 CONT'D

GEODETIC COORDINATES
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GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	DEGREES(TN)	DIRECTION	SPEED KNOTS	
24000.0	400.1	-24.3	-40.3	20.9	568.4	614.6				1.000128

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TABLE 20

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE	PERCENT		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	4895.	16.5	-8.6	17.		266.5	13.5
800.0	6572.	12.3	-11.3	18.		269.1	20.2
750.0	8330.	7.7	-14.4	19.		263.5	24.2
700.0	10177.	2.7	-19.2	18.		260.3	30.9
650.0	12133.	-.2	-22.6	16.		261.8	31.1
600.0	14221.	-3.5	-26.4	15.		261.0	35.5
550.0	16457.	-8.2	-30.9	14.		258.9	44.5
500.0	18864.	-12.7	-33.9	15.		254.8	38.9
450.0	21475.	-17.9	-38.2	15.		255.7	44.2
400.0	24324.	-25.3	-40.7	22.			

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LON DEG

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